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ABSTRACT

The objective of this paper is to examine possible changes in the extent of the turnaround in growth patterns between metropolitan and nonmetropolitan areas throughout the 1970s. Comparisons of trends in both kinds of areas are made across three time periods: 1970-74, 1974-77, and 1977-80. Data used in the analysis are from a special file of intercensal county estimates prepared by the Census Bureau. The most important finding is that the turnaround from negative to positive net migration in nonmetropolitan areas was sustained throughout the 1970s. Nevertheless, there was a slowdown in the growth of nonmetropolitan areas in the late 1970s. An even sharper decline was found for nonmetropolitan net migration rates, as natural increase returned to its traditional position as the most important component of nonmetropolitan growth. Although this could be taken as proof that the turnaround has ended, the overall evidence is stronger that the validity of the turnaround and the slowdown in nonmetropolitan growth by the end of the decade may be incorporated into new theories of urban-rural migration which see a tendency toward balance in the interchange between metropolitan and nonmetropolitan areas. (CMG)

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NONMETROPOLITAN GROWTH IN THE LATE 1970'S: THE END OF THE TURNAROUND?

Kerry Richter

CDE Working Paper 83-20

INTRODUCTION

The "discovery" of the turnaround in growth patterns between metropolitan and nonmetropolitan areas in the early 1970's generated a large body of both theoretical and descriptive literature. Early research documented that the switch from negative to positive net migration into nonmetro areas was more than just a continuation of urban sprawl and that real growth was occurring in remote rural areas. Explanations for the trend included both the economic (deconcentration of manufacturing, expanding energy extraction, growth in the government and service sectors) and the non-economic (preference for rural living, retirement migration, and the modernization of nonmetro areas, including greater accessibility of urban centers) (Beale 1977, Beale and Fuguitt 1978a, Dillman 1979, McCarthy and Morrison 1979, Heaton et al. 1981). Though the shift took many researchers by surprise, it was soon incorporated into theories of urban evolution and economic differentiation. Many voiced concern, however, that the new trend would level off or "bottom out," for several reasons. If nonmetropolitan growth rates reflected a preference for rural living, growth and continued development in such areas could counteract these forces. The growth in new sectors of the economy such as recreational and service related industries and the expansion of government employment and higher education were also seen as trends that would not continue indefinitely. The most frequently voiced concern was that rising energy costs, which accelerated after the oil embargo of 1973-74, would hamper the accessibility of remote regions to urban areas and thus lessen their appeal (Beale 1976, Phillips and Brunn 1978, Voss and Fuguitt 1979). Long and DeAre (1980) specifically addressed these issues in their examination of

turnaround trends as of 1978, where they found that the differential in growth between nonmetropolitan and metropolitan counties actually increased in 1974-78 over the 1970-74 period. They concluded that the momentum of nonmetro growth would continue due to higher rates of natural increase, decentralization of employment, and convergence of nonmetropolitan and metropolitan income levels.

Long and DeAre's study remains the only effort to date which examines nonmetropolitan growth differentials within the 1970-80 period, while most of the turnaround literature compares the post-1970 period with the 1960's and previous decades. The objective of this paper is to examine possible changes in the extent of the turnaround throughout the full decade of the seventies. Comparisons of trends in nonmetropolitan growth are made across three time periods: 1970-74, 1974-77 and 1977-80. Counties are grouped by size of place in order to determine if the inverse pattern of the turnaround, with the most remote and least dense counties showing the greatest increase in growth rates, continued throughout the decade. An analysis of how the components of growth, net migration and natural increase, interacted over the course of the seventies is compared for metro and nonmetro counties. Explanations of trends in net migration are explored by grouping counties by region and economic characteristics. Regression analysis is used to examine what factors continue to explain these trends throughout the decade and which diminish in importance.

DATA

The data used in this analysis is from a special file of intercensal county estimates prepared by the Census Bureau from the Federal-State Cooperative Series (Current Population Reports Series P-25 and P-26). The annual estimates are prepared using a combination of Administrative Records

(using federal tax returns), multiple regression, and vital components techniques. While the methodologies used to develop the estimates are not completely consistent for all years (the Administrative Records technique was not used in 1971 and 1972), inaccuracies due to this inconsistancy should not be significant. The estimates were adjusted by the Census Bureau for differences between the April 1, 1980 estimate for each county and the 1980 census count (defined as the error of closure due to estimation error). This process uses a curvilinear procedure which takes into account both the length of time from the previous census and the size of the estimation error (see Appendix).

The analysis reported here is based upon the 3097 county units and their equivalents (election districts in Alaska, independent cities combined with adjacent counties in Virginia, and SMSA equivalents in New England). Annual births and deaths for these counties and county equivalents were obtained from the Bureau of the Census in order to examine natural increase and net migration in the decade.

A problem in examining trends in metro and nonmetro growth is that official definitions of what is considered metropolitan shift throughout the decade. A nonmetro county which has been reclassified as metropolitan by the end of the decade is more accurately viewed as undergoing metropolitan growth or expansion rather than as the recipient of turnaround migration. Long and DeAre (1980) compare growth rates using a 1970, 1974 and 1980 definition and find that the same general trends prevail regardless of the definition used. In this paper we will utilize both the 1974 (based on 1970 commuting data) and 1980 definitions to examine migration and growth trends. The 1974 definition gives a picture of what occurs in counties classified as nonmetro at the outset of the decade, and is used in a detailed comparison of population change and migration for different types of metropolitan and nonmetropolitan

counties. On the other hand, the 1980 definition is the most restrictive classification of what counties remain nonmtropolitan throughout the 1970's, and is used in the subsequent examination of nonmetro trends.

NONMETROPOLITAN GROWTH TRENDS

A first look at the data for the late 1970's reveals that nonmetropolitan growth appears to have slowed. Table 1 shows annualized growth rates over the three time periods for various metropolitan categories. These rates are the average percentage rate of increase in a one-year period and are presented to facilitate comparisons between the three varying length time periods (of 4.25, 3.00 and 2.75 years respectively). While nonmetropolitan growth rates continued to exceed both the national rate and that of metropolitan areas by the late 1970's (1.23% per year for nonmetro counties vs. 1.07% for metro and 1.11% total in the 1977-80 period), the differential had narrowed. Using the 1980 metropolitan definition (Table 1a) the ratio of nonmetro to metro growth had fallen to 1.15 in 1977-80 after a 1.73 ratio in 1974-77. The drop-off in growth rates for nonmetro areas in the late 1970's occurred almost entirely in counties that are not adjacent to metropolitan areas (0.90 in 1977-80 vs. 1.43 in 1974-77). Thus the "turnaround," or higher growth in nonmetro than metro counties, is found only in counties adjacent to an SMSA by 1977. Nonadjacent counties had lower growth rates than metro areas (.90 vs. 1.07) while adjacent counties continued to grow at about the same rate as in the 1974-77 period (1.43 vs. 1.49). Meanwhile metropolitan counties actually experienced higher growth in the 1977-80 period than at any other point in the decade.

Table 1b shows growth rates using the more detailed metropolitan classification as of 1974. Throughout the 1970's growth in the larger metropolitan areas (those over 500,000) occurred mainly in fringe counties outside of the central city, continuing the pattern of the 1960's. But in a reversal of the sixties pattern, fringe counties of smaller SMSA's were growing faster

than those of the larger SMSA's in the seventies. Growth in core areas of the largest metro areas (over 500,000) was much lower in the seventies than in the sixties, though the 1977-80 period showed an upturn in growth for those areas. The growth rate for the smallest SMSA's (those under 100,000) increased consistently over the course of the decade, with a rate almost twice that of the nation as a whole by 1977-80 (2.02% annually vs. 1.11% nationally). Nonmetropolitan, nonadjacent counties growing fastest at mid-decade were those with the smallest population centers, a group that had experienced negative growth in the sixties. By the 1977-80 period, however, growth in the remotest regions appears to have slowed. The decline in growth rates for nonadjacent areas was greatest in completely rural counties (those with no center of 2500), where growth dropped to 1.06 after a 1974-77 rate of 1.72. In nonmetro counties adjacent to an SMSA, growth rates remained fairly constant throughout the decade, with a small decline for counties having cities of over 2500 population. Thus while nonmetro counties continued to grow in the 1977-80 period, several of the patterns emphasized in the turnaround literature of the early 1970's appear to have shifted. In particular the growth of the 1977-80 period is characterized by the expansion of metropolitan areas, with adjacent counties having the highest growth rates, and by a revival in SMSA growth for the smaller SMSA's.

MIGRATION TRENDS

While the finding that nonmetropolitan counties were growing at a faster rate than SMSA's in the early 1970's represented a marked change from previous patterns, the even more remarkable implication was that these counties had shifted from negative to positive net migration. Areas which had experienced an outflow of population for two decades became the recipients of new migrants while the traditional drawing power of metropolitan centers diminished. It is

thus important to examine migration rates over the course of the decade in order to see if the momentum of this turnaround has continued. In addition, growth rates may mask trends in migration as shifts in the age structure of metro and nonmetro areas lead to changes in rates of natural increase, as will be discussed in more detail below.

Table 2 shows annualized migration rates for the 1960's and 1970's. The metropolitanization of the 1960's is shown by the negative growth rates in all nonmetro areas and in SMSA's under 100,000. The turnaround of the 1970-74 period is thus even more dramatic than is revealed by growth rates, with nonmetro migration nearly three times that of metropolitan counties (0.88% annually vs. 0.32% in metro areas). This differential increases in the 1974-77 period (0.92% vs. 0.24%) and the highest migration rates are found in counties with the smallest population centers (1.65% in adjacent counties and 1.26% in nonadjacent counties with centers of less than 2500). But the flow of migration in the 1977-80 period into nonmetro and particularly nonadjacent counties slows even more than would be indicated by growth rates: nonadjacent counties grew only 0.23% annually from net migration in this period, less than a third of the 1974-77 rate. As seen in Table 2b, migraton into metropolitan areas picked up in this period, mainly due to a smaller decline in the core counties of the largest SMSA's and small increases in fringe counties and small SMSA's. While nonmetropolitan migration is still 1.5 times that of metropolitan counties, much of this migration is to areas adjacent to a metropolitan center rather than to the most rural counties.

CHANGES IN NATURAL INCREASE IN THE 1970'S

The change in the differential between metro and nonmetro growth rates is further explained by changes in natural increase over the period. The aging of the nonmetropolitan population in the 1960's as young people of

childbearing ages moved out helped to contribute to the low growth rates in these areas in the past. The turnaround in migration patterns means that imbalances in the age structure of nonmetropolitan areas may begin to dissipate, and the natural increase component of nonmetro growth will again be important. But these age structure differentials will perpetuate if retirement migration is a major explanation for the turnaround, as has been suggested by much of the literature (Wardwell 1977, Beale and Fuguitt 1978a, Lichter et al. 1979).

Figure 1 shows the dramatic drop in crude natural increase rates (births minus deaths per 1000) in the early 1970 s, particularly for metropolitan areas. While the gap between metro and nonmetro counties is large in the early 1970's, it has narrowed by the mid-1970's, and nearly disappeared for nonadjacent counties by 1977. If migration into these areas was mainly by young families this may be explained by increasing birth rates and declining death rates. These two components of natural increase are examined in Figure 2. Crude death rates decline throughout the decade for both metro and nonmetro areas, and the gap has narrowed as the nonmetropolitan rates have declined more steeply. Crude birth rates drop sharply from 1970 to 1973, where they level off before increasing again in 1977. Nonmetropolitan birth rates are lower than metropolitan rates in 1970 but they are higher throughout the rest of the decade, and the gap widens particularly for nonadjacent counties. Thus the narrowed gap in natural increase between nonmetro and metro areas by the end of the decade is due to the fact that the birth rates in nonmetro areas become high enough to offset the higher nonmetro death rates, which in addition have become relatively less different from the metropolitan death rates over the course of the decade.

The interaction between natural increase and migration as they contribute to growth rates for nonmetro and metro areas is summarized in Table 3. Here

birth and death rates are annualized over the three periods in the same way as migration rates, so that the contribution of each to growth (births minus deaths plus migraton) is shown explicitly. It is seen that much of the growth of metro areas in the 1970-74 period is due to natural increase, and that the decline in growth by 1974-77 is mainly due to a drop in this component of growth. For nonmetro areas the drop in death rates along with continued relatively high birth rates creates a momentum of growth by the late 1970's that helps to offset the decline in migration. In nonadjacent counties this relationship is most extreme: a comparison of the last period with the first shows that while annualized crude death rates dropped .13 points, birth rates dropped only .05 and hence while migration dropped .42 points annualized growth dropped only .33.

To state these changes another way, Table 4 shows the proportional contributions of natural increase and migration to growth for the three time periods. In the first two periods the relationships are opposite for metro and nonmetro areas: for nonmetro counties most growth is due to migration, while in metro counties most is due to natural increase. But by the 1977-80 period only nonadjacent nonmetro counties continue in this pattern: over half of the total growth in nonmetro areas is due to natural increase, while in metro areas the migration component has increased.

These findings indicate that the age structure of nonmetropolitan areas has become younger over the course of the decade: relative to metropolitan areas, death rates have lowered and birth rates have risen. These changes have helped to offset the drop in net migration by the late 1970's, to the point that natural increase is the largest component of growth for nonmetro areas in 1977-80. An examination of the age composition of metro to nonmetro and nonmetro to metro streams in 1970-75 by Lichter et al. (1979) found that while the "turnaround" stream has an older age structure, the greater

retention of young people in nonmetro areas has helped to offset the impact of the new migrants. Indeed, the two streams are so similar that the net impact on the age structure on either destination is minimal. The natural increase findings presented here however would tend to confirm Long and DeAre's (1980) conclusion that the momentum of growth to nonmetro areas should continue, even if migration slows, as part of the effect of the turnaround is the retention of young families. In this way it appears that the differential between metro and nonmetro areas will continue to narrow.

REGIONAL TRENDS IN NONMETROPOLITAN MIGRATION

The turnaround literature has cited other ways in which the differences between metro and nonmetro areas have lessened, such as in lifestyle, socioeconomic status and income. These changes have come about as urban expansion made nonmetro areas more accessible, while the decentralization of manufacturing and service jobs have led to the convergence of the economic roles of metro and nonmetro areas. Functional explanations for the turnaround have identified regions of the country which have benefited from this economic decentralization as well as from increased energy extraction and recreational activity.

Nonmetropolitan migration is shown on a regional basis in Table 5 in order to examine the endurance of these trends over the course of the 1970's. Counties are grouped by the twenty-six economic subregions developed by Beale (Beale and Fuguitt 1978b), as shown in Figure 3. Negative migration in all but four of the areas is seen in the 1960's. By the 1970-74 period only three areas continued to experience outmigration, all of which are agricultural regions (the Central Corn Belt, Mississippi Delta and Northern Great Plains). Other agricultural areas tended to have below average net migration, such as the Dairy Belt, Southern Corn Belt, Coastal Plain Tobacco

and Peanut Belt, the Old Coastal Plain and the Southern Great Plains. Areas which received above average migration included regions typified by urban expansion (the Northern Metropolitan Belt); retirement/amenity migration (Upper Great Lakes, Ozark-Ouachita Uplands, Florida Peninsula, the Southwest and Hawaii); and energy extraction activities (Southern Appalachian Coal, the Rockies, Blue Ridge/Smokies, and East Texas/Coastal Plain).

By the mid seventies some of these trends have continued while others have ebbed. In the 1974-77 period regions with energy extractive activities show increased growth (Southern Appalachian Coal, Gulf of Mexico/South Atlantic, the Rio Grande). But these areas exhibited slowed growth by 1977-80, as did some areas associated with retirement/amenity migration (Upper Great Lakes, Ozark-Ouachita), though the Florida Peninsula continued to have high inmigration. Agricultural areas with the exception of the Dairy Belt continued to have below average (but mainly positive) migration rates in the 1977-80 period. Areas which showed above average migration throughout the 1970's are the Northern Metro Belt, the Southern Interior Uplands, the Blue Ridge/Great Smokies/Great Valley, the Florida Peninsula, East Texas/Coastal Plain, Ozark-Ouachita, the Rockies, the North Pacific & Alaska, and the Southwest & Hawaii. This group includes the five regions which had positive net migration rates in the 1960's; the other four (the Southern Interior Uplands, Blue Ridge, East Texas and Rockies) did not experience a turnaround until the 1970-74 period. It would seem that while these regions have entered a period of sustained nonmetropolitan growth, others such as the Mohawk Valley, Northern New England, and several of the agricultural regions experienced a short-lived boom in the mid-1970's which leveled off as the widespread nature of the trend has moderated.

ANALYSIS OF COUNTY CHARACTERISTICS

In order to more fully understand the factors that may continue to drive nonmetropolitan growth or that may have produced short-lived migration trends, we have examined county level economic characteristics. While more recent data would be useful to examine how employment trends affected migration over the course of the decade, 1980 figures are as yet unavailable. What can be done however is to categorize counties by their characteristics as of 1970. In this way it can be seen how certain types of counties, as defined at the outset of the decade, fared throughout the seventies.

Table 6 shows annual migration rates throughout the decade by selected economic characteristics. Counties characterized by a high degree of employment in agriculture experienced lower rates of migration throughout the decade. This effect is more moderate in the 1974-77 period, when even counties that had 30-40% employment in agriculture experienced positive net migration. High out-migration among heavily agricultural counties returned in the 1977-80 period however. Counties which were not characterized by a high degree of manufacturing employment in 1970 had higher rates of growth throughout the 1970's, with those with a moderate degree of such employment having the greatest amount of net migration. As was indicated in the regional tables, counties with some degree of mining employment had high rates of migration during the 1974-77 period, but this effect declined for those with a high (10% and up) degree of mining employment by 1977. Counties with at least 10% of their employment in entertainment and personal services had very high rates of inmigration throughout the period. Two variables explored by Beale and Fuguitt (1978a), military employment and the presence of a senior state college, show fluctuating effects throughout the decade. While counties with a high degree of military employment showed population losses in 1970-74,

this process reversed in the 1974-77 period. By 1977-80 however the small number of counties with over 5% military employment were experiencing negative net migration. Presence of a state college was found to be a powerful explanation of the nonmetro turnaround in the 1970-74 period. It is seen here however that the relationship was reversed after 1974, with counties having a state college experiencing only half the rate of net migration of the nation as a whole.

These factors driving migration throughout the 1970's are further analyzed using multiple regression analysis. By estimating a multivariate model we may examine the effect of county characteristics in a combined fashion. This analysis utilizes many of the variables developed by Heaton et al. (1981) and Beale (1977). The dependent variable is the annualized net migration rate in the three time periods for the 2390 nonmetropolitan counties and their equivalents, using the 1980 metropolitan definition. Independent variables include county characteristics in 1970, such as percent employed in agriculture, percent black, and dummy variables measuring military employment over 5% and presence of a state college. Variables measuring deconcentration are a dummy variable for counties adjacent to an SMSA and a dummy for counties having a center of at least ten thousand people in 1970. The three amenity variables are similar to those developed by Heaton et al.(1981). These are mild temperature, as measured by the ratio of the average January temperature to the average June temperature; presence of water, as measured by the sum of two standardized variables measuring water presence and the log of the area of inland water; and recreational development, measured by summing three log-transformed standardized variables: percent employed in entertainment, recreation and personal services; the number of hotels and motels per capita; and the proportion of seasonal housing units. Interactions among the three

amenity variables were also examined in order to see if the presence of these characteristics in combination had a further contribution to migration. Weighted regression analysis was used so as to reduce measurement error resulting from unequal error variance (with errors being greater in smaller counties). The results were found to be similar to that using unweighted regression.

The regression results are presented in Table 7. Columns 1, 2 and 3 can be compared for changes in the effects of the independent variables over the course of the decade. Counties characterized by a high degree of agricultural employment tended to have lower net migration throughout the decade. Nonmetropolitan counties with a high percentage black were found by Beale (1977) to lose population in the early turnaround period of 1970-75. The regression indicates that this pattern continued throughout the decade. Areas with a high degree of military employment also tended to have lower net migration rates but this tendency had lessened by 1974-77. The positive effect of the presence of a state college in the county was not significant by 1974. This finding tends to support that of Beale (1977), who concluded that the relative role of the state college in nonmetropolitan growth dropped off after 1970 when other factors became more salient.

The regresson indicates that patterns of population deconcentration appear to have shifted over the course of the decade. The tendency for counties with larger population centers to have lower migration rates is strongest in the middle period. The equation for the 1970-74 period also shows a positive effect for counties adjacent to an SMSA. This variable is not significant in the 1974-77 period but has a strongly positive effect in 1977-80. This finding confirms the indication that while deconcentration continued in the late 1970's, the attraction of the more remote areas appears to have waned.

The results for the amenity variables reveal how the types of nonmetro areas that were receiving migrants changed over the course of the decade. In the 1970-74 period the single effect of water presence is not significant, but the interactions of water presence with mild temperature and with recreational development are both strongly positive, as are the single effects of these two variables. This would indicate that in the early part of the seventies the presence of water alone did not draw migrants, but that amenity development and more temperate areas of the country were a large part of the explanation for nonmetropolitan growth. In the 1974-77 period presence of water alone is not significant, and the coefficients of the interaction variables are somewhat lower. The single order effects of mild temperature and recreational development continue to be high in the middle period. The equation for the last period shows that only mild temperature of the single-order effects is significant at the .01% level, along with the interaction of mild temperature with the other two amenity variables. In particular the interaction of development with mild temperature has a high positive coefficient in comparison with the earlier two periods. This finding confirms what was seen in Table 5: that migration to some of the northern nonmetropolitan regions identified as amenity areas, such as the Upper Great Lakes and the Ozarks, had fallen off by 1977-80, while areas such as the Florida Peninsula and the Southwest continued to have high positive migration.

In columns 4 and 5 the net migration rate for the 1970-74 period is added as an independent variable. By controlling for the migration of the previous period it is possible to see what factors are associated with changes in migration rates over the period, i.e. which had an effect on migration in the later period net of the trends found in the early 1970's. It is seen by comparing columns 2 and 4 and columns 3 and 5 that the independent variables have a continued effect on migration in the same direction as the earlier equations.

To summarize, the regression results indicate that many of the factors cited as explanations for the turnaround in the early 1970's have shifted in importance by the end of the decade. Areas characterized by a high degree of agricultural employment, a high proportion of black population or a high degree of military employment tended to lose population throughout the 1970's, and the presence of a state college did not appear to draw people to nonmetropolitan areas after 1974. While areas most remote from urban centers are indicated to be recipients of much turnaround migration up until 1977, after this point adjacency to an SMSA becomes a more salient factor. Amenity variables continue to provide a powerful explanation of nonmetro migration throughout the 1970's, but the types of areas receiving such migration appear to have shifted by the end of the decade. In particular the milder amenity regions appear to have been most successful in continuing to draw migrants by the late 1970's.

CONCLUSIONS

The most important conclusion to be drawn from this analysis is that the turnaround from negative to positive net migration in nonmetropolitan areas was sustained throughout the 1970's. This shift was pervasive: it occurred in nearly all regions of the country and at all levels of population concentration. It is certain that the impact of the turnaround has been greatest in nonmetropolitan areas. In many cases, communities which had a small, declining population base experienced an influx of new residents, an expanding economic sector and novel development in the 1970's. Our analysis has confirmed that amenity and recreational characteristics continue to attract migrants, particularly in warmer climates, indicating that people may be continuing to act upon a preference for rural areas. Recent research by

Long and DeAre (1982) confirms that jobs and household income both grew in nonmetropolitan areas in the 1970's. As an unprecedented shift in metropolitan migration patterns, the importance of the turnaround should not be minimized.

The evidence presented here nevertheless indicates a slowdown in the growth of nonmetropolitan areas in the late 1970's. An even sharper decline was found for nonmetropolitan net migration rates, as natural increase returned to its traditional position as the most important component of nonmetropolitan growth (Johnson and Purdy 1980). We have seen that many of the explanations for the turnaround given in past literature appear to have had short-term effects, such as energy extractive activities, presence of a state college and military employment. In addition, the widespread nature of the turnaround in the 1970-74 period, when growth was found even in heavily agricultural and declining regions of the country, had dropped off by the mid-1970's. There is much evidence that areas identified as "turnaround regions," especially the more northern amenity areas such as the Upper Great Lakes, may have experienced a short-lived migration boom which has now passed. The appeal of the most remote rural areas including those with small population centers appears to have ebbed by 1977, at the same time that nonmetro counties adjacent to a metropolitan area showed the highest net migration rates.

Does this evidence indicate an affirmative answer to the question put forth in this paper - is this the end of the turnaround? The "discovery" of the upsurge in nonmetropolitan growth by Beale (1975) was at first dismissed by many as some kind of statistical aberration, as it did not fit into the current theories of metropolitan settlement. While the validity of the turnaround eventually gained acceptance, the evidence presented here could

feasibly imply that the phenomenon was short-lived and anomalous, like the baby boom of the 1950's. The preference for rural areas may have arisen out of dissatisfaction with urban life in the late 1960's, but was a faddish and temporary trend. There also may be a limit to the ability of rural areas to accommodate newcomers: if development occurs as a result of heavy inmigration, these areas may lose their original appeal. And energy costs may have become a prohibitive factor for many who considered such a move after the oil embargo of 1973-74, as witnessed by the slowdown in growth for more remote and colder regions.

The evidence is stronger however that the validity of the turnaround and the evidence for a slowdown in nonmetro growth by the end of the decade may be incorporated into new theories of urban-rural migration. These theories provide a rationale for the movement into and out of metropolitan areas which help to describe how settlement patterns are changing in developed, "post-industrial" societies. Innovations in communication and transportation technology have led to a decline in the importance of distance from an urban center for both individuals and industries (Wardwell 1980, J. Long 1982). These developments mean that individuals are able to act on a long-held preference for rural living and that firms may escape the high costs of metropolitan location. Wardwell (1977) has outlined how this functional explanation of the shift in the importance of metro areas has led to an equilibrium in metro/nonmetro settlement patterns:

> "Such an equilibrium may take the form of regularized streams of migration in both directions, approximately equal in total volume and roughly similar in composition. Equilibrium might thus be indicated by the comparability of these streams rather than by any cessation or lessening of total movement....Were such an equilibrium hypothesis found to be viable with additional data analysis, we would be in a position to explain the recent turnaround in migration patterns in part as a temporary and stabilizing return to equilibrium, following slight movement beyond the limit, or as temporal fluctuations about that limit in a condition of long-term equilibrium already achieved" (1977).

Evidence on the age structure of the two migration streams over the decade of the seventies indicates that they may be becoming more similar, and certainly the higher rates of natural increase for nonmetro areas indicate a shift in the age composition. In this way it is seen that there is a tendency towards balance in the interchange between metro and nonmetro areas, as evidenced by the continuing pattern of deconcentration throughout the seventies, including a resurgence of growth in smaller metropolitan areas.

The full picture of how growth trends in the 1970's conform to population distribution theories will not emerge until some time has passed for reflection and further analysis. But the findings presented here would tend to support the thesis that nonmetropolitan growth, as a part of the continuing deconcentration of the country as a whole, will continue past the 1970's. Evidence of a slowdown in fact may only corroborate the notion that migration between nonmetro and metro areas is tending towards equilibrium.

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Table 1: Annual Growth Rates by Metropolitan Status

	1960-70	1970-74*	1974-77*	1977-80*
U.S. Total	1.25	1.14	1.00	1.11
Table 1a: 1980 Metropolitan Definition:				
Metropolitan	1.57	1.04	0.85	1.07
Nonmetropolitan	0.30	1.46	1.47	1.23
Adjacent	0.52	1.61	1.49	1.43
Nonadjacent	-0.04	1.23	1.43	0.90
Ratio Nonmetropolitan/ Metropolitan	0.19	1.40	1.73	1.15
Table 1b: 1974 Metropolitan Definition:				
Metropolitan	1.57	1.00	0.80	1.04
SMSA 500,000:				
Core	1.20	0.39	0.19	0.53
Fringe	2.76	1.69	1.51	1.64
SMSA 100-500,000:				
Core	1.55	1.67	1.36	1.42
Fringe	1.41	2.37	2.04	2.16
SMSA 100,000 (core)	1.02	1.26	1.79	2.02
Nonmetropolitan[b]	0.42	1.53	1.51	1.30
Adjacent:	0.70	1.70	1.52	1.52
SLP 2500	0.75	1.68	1.46	1.48
SLP 2500	0.22	1.95	2.10	1.92
Nonadjacent:	0.14	1.34	1.50	1.06
SLP 10,000+	0 62	1.47	1.42	1.14
SLP 2.5-10,000	-0.17	1.14	1.49	0.96
SLP 2500	-0.34	1.44	1.72	1.06
Ratio Nonmetropolitan/ Metropolitan	0.27	1.53	1.89	1.25

[a] Does not include Washington D.C.

[b] Nonmetropolitan counties are classified by size of largest place (SLP) as of 1970

Growth rate is computed by (100) where K is the length of the time period in years

Table 2: Annual Migration Rates by Metropolitan Status

	1960-70	1970-74*	1974-77*	1977-80*
U.S. Total	0.17	0.45	0.41	0.45
Table 2a: 1980 Metropolitan Definition:				
Metropolitan	0.43	0.32	0.24	0.40
Nonmetropolitan	-0.64	0.88	0.92	0.60
Adjacent	-0.42	1.02	0.96	0.82
Nonadjacent	-0.98	0.65	0.86	0.23
Ratio Nonmetropolitan/ Metropolitan		2.75	3.83	1.50
Table 2b: 1974 Metropolitan Definition:				
Metropolitan	0.44	0.28	0.20	0.37
SMSA 500,000:				
Core	0.13	-0.25	-0.34	-0.07
Fringe	1.57	0.93	0.88	0.96
SMSA 100-500,000:				
Core	0.29	0.84	0.64	0.64
Fringe	-0.33	1.59	1.36	1.45
SMSA 100,000	-0.33	0.35	1.00	1.13
Nonmetropolitan[b]	-0.54	0.92	0.95	0.66
Adjacent:	-0.24	1.10	0.99	0.92
SLP 2500	-0.20	1.06	0.92	0.87
SLP 2500	-0.62	1.46	1.65	1.37
Nonadjacent:	-0.85	0.73	0.91	0.38
SLP 10,000+	-0.54	0.72	0.73	0.37
SLP 2.5-10,000	-1.05	0.62	0.96	0.34
SLP 2500	-1.16	1.01	1.26	0.49
Ratio Nonmetropolitan/ Metropolitan		3.29	4.75	1.78

[a] Does not include Washington D.C.
[b] Nonmetropolitan counties are classified by size of largest place (SLP) as of 1970.

Table 3: Annual Growth, Birth, Death and Migration Rates by 1980 Metropolitan status

Date	GROWTH	=	BIRTH	-	DEATH	+	MIGRATION
Total							
1970-74	1.14	=	1.62		0.93	+	0.45
1974-77	1.00	=	1.47	-	0.88	+	0.41
1977-80	1.11	=	1.51	-	0.85	+	0.45
Metropolitan							
1970-74	1.04	=	1.60	-	0.89	+	0.32
1974-77	0.85	=	1.45	-	0.84	+	0.24
1977-80	1.07	=	1.49	-	0.82	+	0.40
Nonmetropolitan							
1970-74	1.46	=	1.65	-	1.06	+	0.88
1974-77	1.47	=	1.54	-	0.99	+	0.92
1977-80	1.23	=	1.57	-	0.94	+	0.60
Adjacent							
1970-74	1.61	=	1.64	-	1.05	+	1.02
1974-77	1.49	=	1.51	-	0.98	+	0.96
1977-80	1.43	=	1.54	-	0.93	+	0.82
Nonadjacent							
1970-74	1.23	=	1.67	-	1.09	+	0.65
1974-77	1.43	=	1.59	-	1.02	+	0.86
1977-80	0.90	=	1.62	-	0.96	+	0.23

Table 4: Components of Growth by 1980 Metropolitan Status

	Natural Increase	Migration
1970-74		
Metropolitan	69.2%	30.8%
Nonmetropolitan	39.7%	60.3%
(Adjacent)	(36.6%)	(63.4%)
(Nonadjacent)	(47.2%)	(52.8%)
1974-77		
Metropolitan	71.8%	28.2%
Nonmetropolitan	37.4%	62.6%
(Adjacent)	(32.9%)	(67.1%)
(Nonadjacent)	(39.9%)	(60.1%)
1977-80		
Metropolitan	62.6%	37.4%
Nonmetropolitan	51.2%	48.8%
(Adjacent)	(42.7%)	(57.3%)
(Nonadjacent)	(74.4%)	(25.6%)

Table 5: Annual Migration Rates for Nonmetropolitan Counties by Region[a]

U.S. Total	1960-70	1970-74	1974-77	1977-80
Northern New England-St. Lawrence	-0.62	0.73	0.77	0.04
Northeastern Metropolitan Belt	1.07	2.23	1.78	1.28
Mohawk Valley and New York-Pennsylvania Border	-0.35	0.42	0.24	-0.49
Northern Appalachian Coal Fields	-0.78	0.71	0.62	0.22
Lower Great Lakes Industrial	-0.08	0.36	0.03	0.12
Upper Great Lakes	-0.15	1.70	1.43	0.38
Dairy Belt	-0.35	0.74	0.89	0.91
Central Corn Belt	-0.75	-0.17	0.02	-0.58
Southern Corn Belt	-0.47	0.58	0.54	0.37
Southern Interior Uplands	-0.18	1.02	1.31	0.69
Southern Appalachian Coal Fields	-2.19	1.18	2.27	0.14
Blue Ridge, Great Smokies, and Great Valley	-0.45	1.54	1.52	1.09
Southern Piedmont	-0.57	1.00	0.44	0.65
Coastal Plain Tobacco and Peanut Belt	-1.38	0.63	0.78	0.30
Old Coastal Plain Cotton Belt	-1.33	0.49	0.42	-0.08
Mississippi Delta	-2.31	-0.65	-0.14	-0.89
Gulf of Mexico and South Atlantic Coast	-0.66	0.23	1.23	1.08
Florida Peninsula	2.48	6.97	3.69	5.46
East Texas and Adjoining Coastal Plain	-0.09	1.39	1.19	1.97
Ozark-Ouachita Uplands	0.46	2.24	1.82	1.14
Rio Grande	-1.69	0.48	1.37	1.09
Southern Great Plains	-1.45	0.08	0.41	0.05
Northern Great Plains	-1.60	-0.20	0.13	0.33
Rocky Mountains, Mormon Valleys, and Columbia Basin	-0.56	1.53	1.58	1.50
North Pacific Coast (including Alaska)	0.07	1.41	1.98	1.70
The Southwest (including Hawaii)	0.32	2.79	2.12	3.08

[a] Metropolitan status as of 1980

Table 6: Annualized Migration Rates by Selected County Characteristics for Nonmetropolitan Counties[a]

	1970-74	1974-77	1977-80	Number of Counties
U.S. Total	0.88	0.92	0.60	(2390)
Percent Employed in Agriculture				
0-4.9%	1.05	1.05	0.62	(443)
5-9.9%	0.99	0.96	0.72	(535)
10-19.9%	0.97	0.96	0.76	(712)
20-29.9%	0.30	0.68	0.23	(370)
30-39.9%	-0.39	0.06	-0.56	(221)
40+	-0.88	-0.79	-1.57	(109)
Percent Employed in Manufacturing				
0-4.9%	0.37	1.03	0.54	(391)
5-9.9%	1.36	1.32	1.12	(329)
10-19.9%	0.91	1.18	0.73	(530)
20-29.9%	0.96	0.94	0.58	(535)
30-39.9%	0.72	0.66	0.32	(361)
40+	0.74	0.46	0.41	(244)
Percent Employed in Mining				
0-4.9%	0.90	0.85	0.56	(2078)
5-9.9%	0.90	1.30	1.18	(155)
10%+	0.66	1.51	0.66	(157)
Percent Employed in Entertainment & Personal Services				
0-4.9%	0.80	0.78	0.32	(1048)
5-9.9%	0.84	0.94	0.69	(1199)
10%	1.93	1.82	1.87	(143)
Percent Employed in the Military				
0-4.9%	0.93	0.94	0.64	(2344)
5-9.9%	0.51	0.10	-0.24	(21)
10%+	-1.38	0.94	-0.31	(25)
State College				
No	0.86	0.96	0.65	(2227)
Yes	1.03	0.67	0.30	(163)

[a] Nonmetropolitan status as of 1980

Table 7: Regressions on Net Migration Rates for Nonmetropolitan Counties[a]

	(1)	(2)	(3)	(4)	(5)
	1970-74	1974-77	1977-80	1974-77	1977-80
Percent Employed in Agriculture[b]	-.262**	-.200**	-.265**	-.105**	-.172**
	(-.032)	(-.023)	(-.033)	(-.012)	(-.021)
	(.003)	(.003)	(.003)	(.003)	(.003)
Percent Black	-.306**	-.275*	-.285**	-.163**	-.173**
	(-3.28)	(-2.80)	(-3.09)	(-1.66)	(-1.88)
	(.222)	(.210)	(.238)	(.204)	(.234)
Military Employment	-.139**	-.051**	-.106**	-.001	-.056**
	(-1.64)	(-.567)	(-1.26)	(-.015)	(-.668)
	(.193)	(.182)	(.206)	(.172)	(.196)
Presence of State College	.052**	-.023	-.019	-.042*	-.037
	(.325)	(-.138)	(-.119)	(-.246)	(-.231)
	(.110)	(.104)	(.118)	(.097)	(.111)
Largest Place in County 10,000+	-.073**	-.115**	-.100	-.089**	-.074**
	(-.256)	(-.383)	(-.356)	(-.295)	(-.264)
	(.075)	(.071)	(.080)	(.066)	(.075)
Adjacency to SMSA	.062**	.019	.175**	-.042*	.152**
	(.183)	(.054)	(.526)	(.118)	(.458)
	(.064)	(.060)	(.068)	(.056)	(.064)
Presence of Water	-.111	-.047	-.136*	-.001	-.088
	(-.145)	(-.058)	(-.179)	(-.001)	(.116)
	(.076)	(.072)	(.081)	(.067)	(.076)
Recreational Development	.273**	.316**	.069	.212**	-.037
	(.301)	(.327)	(.076)	(.219)	(-.040)
	(.050)	(.047)	(.053)	(.044)	(.050)
Mild Temperature	.838**	.838**	.830**	.528**	.520**
	(3.48)	(3.28)	(3.46)	(2.07)	(2.17)
	(.132)	(.124)	(.140)	(.132)	(.150)
Mild Temperature x Development	-.043	-.111*	.185**	-.095*	.202**
	(-.096)	(-.233)	(.411)	(.199)	(.447)
	(.100)	(.094)	(.105)	(.087)	(.099)
Mild Temperature x Water Presence	.159**	.139*	.245**	.075	.179**
	(.418)	(.344)	(.641)	(.186)	(.468)
	(.152)	(.143)	(.162)	(.134)	(.152)
Water Presence x Development	.158**	.092**	.045*	.033*	-.014
	(.099)	(.054)	(.028)	(.002)	(-.009)
	(.011)	(.010)	(.012)	(.010)	(.011)
Net Migration Rate 1970-74	-	-	-	.370	.371
				(.342)	(.360)
				(.018)	(.020)
R^2	.409	.411	.335	.490	.414

* significant at .05% level
** significant at .01% level

Key: standardized coefficient
(unstandardized coefficent)
(standard error)

[a]Based on weighted regression analyaia where each county is weighted by population size

[b]See text for explanation of variables

FIGURE 1: NATURAL INCREASE BY 1980 METROPOLITAN STATUS

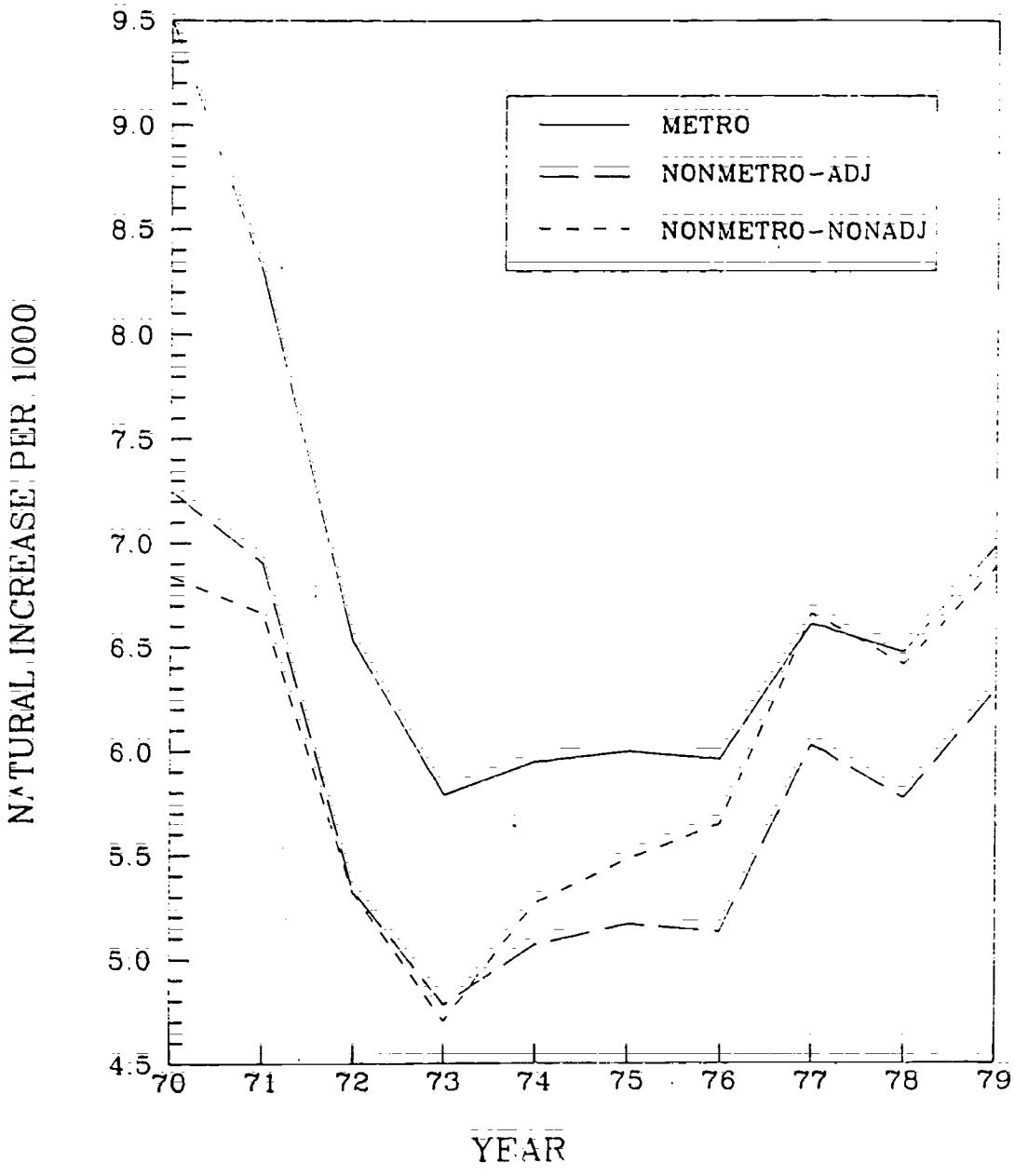


FIGURE 2: CRUDE BIRTH AND DEATH RATES BY 1980 METROPOLITAN STATUS

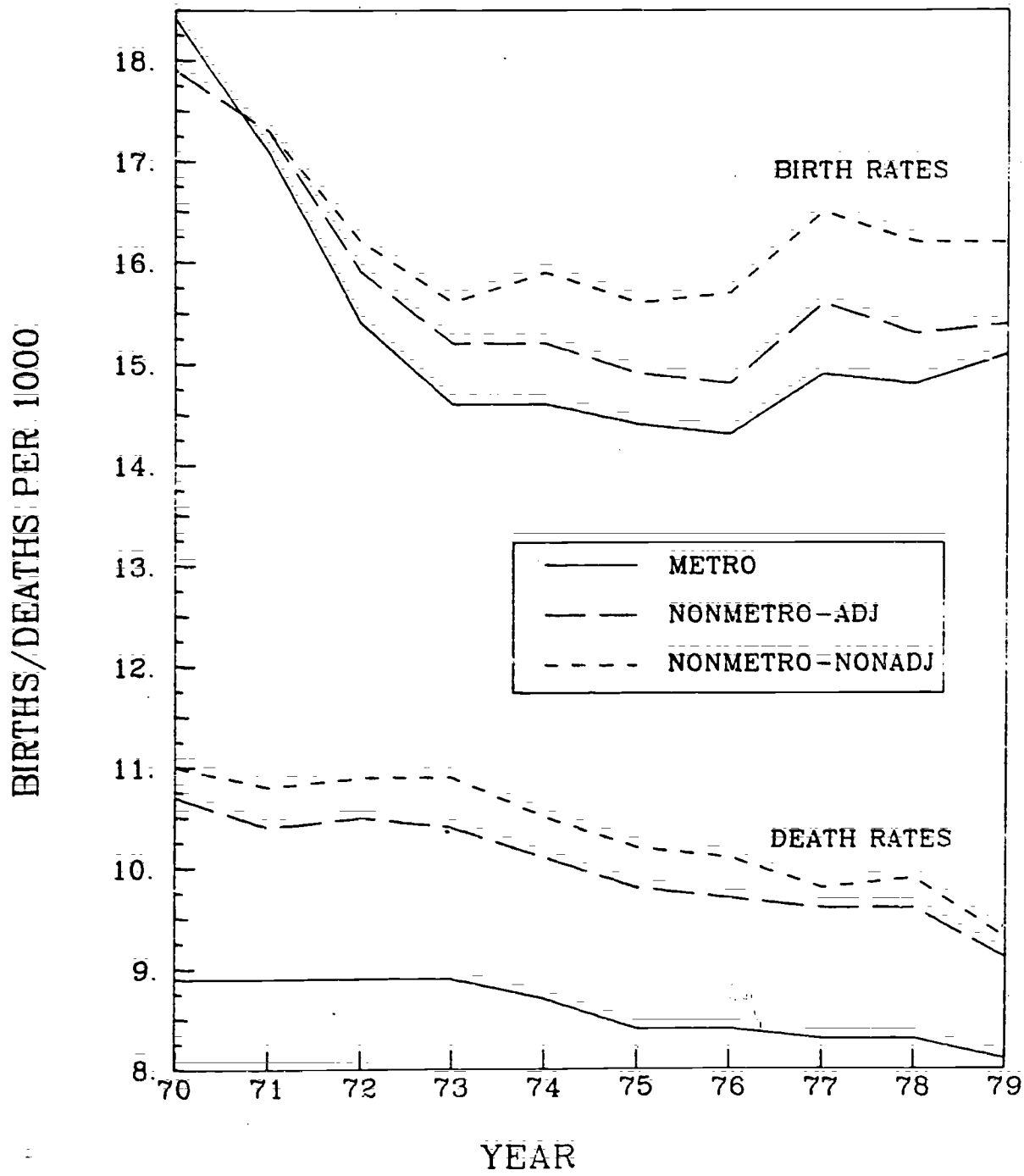
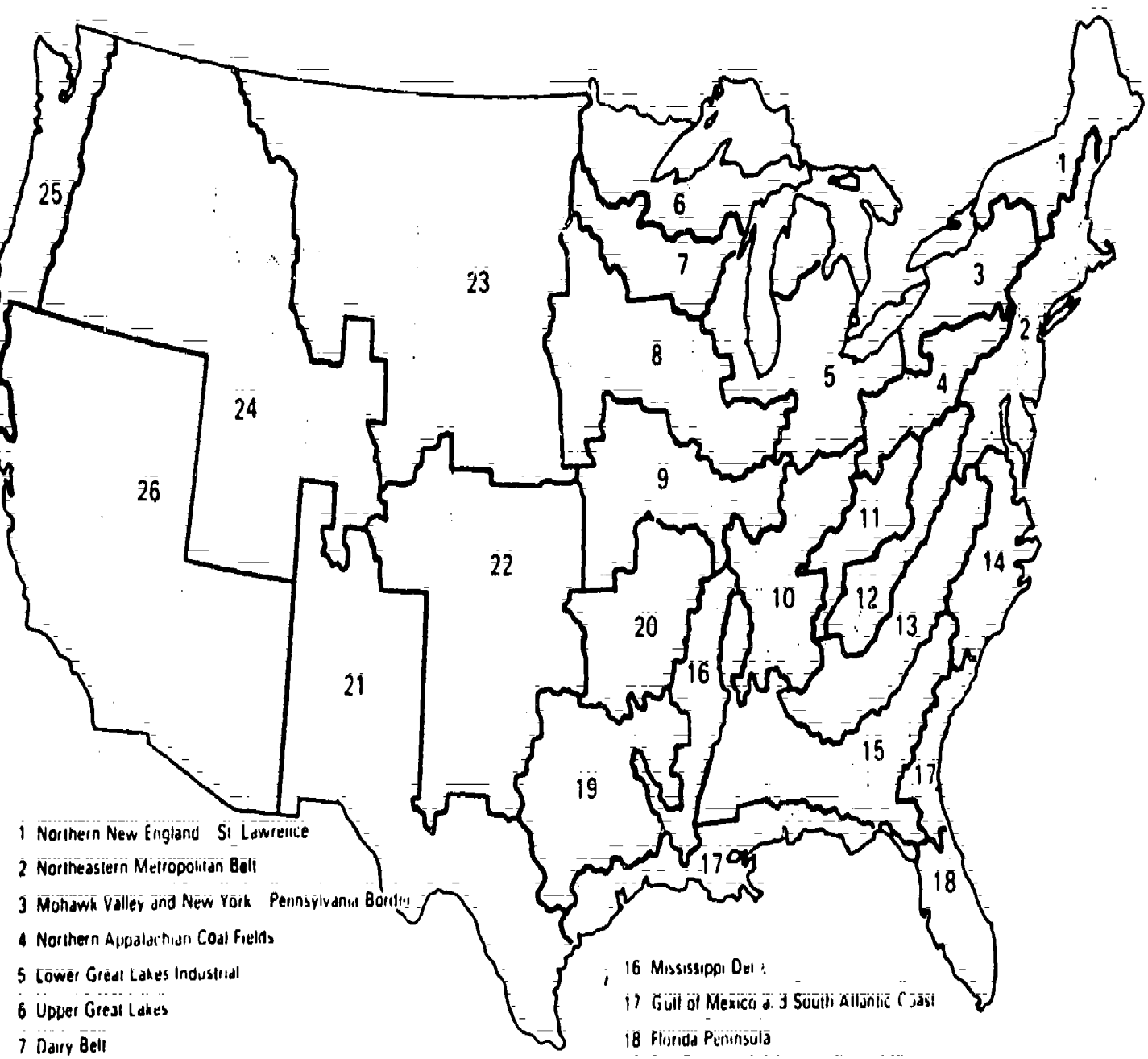


Figure 3: Beale Economic Subregions of the United States



1 Northern New England St Lawrence
2 Northeastern Metropolitan Belt
3 Mohawk Valley and New York Pennsylvania Border
4 Northern Appalachian Coal Fields
5 Lower Great Lakes Industrial
6 Upper Great Lakes
7 Dairy Belt
8 Central Corn Belt
9 Southern Corn Belt
10 Southern Interior Uplands
11 Southern Appalachian Coal Fields
12 Blue Ridge Great Smokies and Great Valley
13 Southern Piedmont
14 [illegible]ain Tobacco and Peanut Belt
15 [illegible]al Plain Cotton Belt
16 Mississippi Delta
17 Gulf of Mexico and South Atlantic Coast
18 Florida Peninsula
19 East Texas and Adjoining Coastal Plain
20 Ozark Ouachita Uplands
21 Rio Grande
22 Southern Great Plains
23 Northern Great Plains
24 Rocky Mountains Mormon Valleys and Columbia Basin
25 North Pacific Coast (including Alaska)
26 The Southwest (including Hawaii)

APPENDIX: Procedure for Adjustment for Error of Closure

$$P_{ijt} = \frac{Q_{ijt}\,[(10-t)\,Q_{ij10} + t\,P_{ij10}]}{10 Q_{ij10}}$$

for $t = 0, 1.25, 2.25 \ldots 9.25, 10$;
$i = 1, 2, \ldots n$ and
$j = 1, 2, \ldots 51$

where n = the number of counties in state j;
P_{ijt} = the intercensal estimate for county i in state j at time t;
Q_{ijt} = the postcensal estimate for county i in state j at time t;
P_{ij10} = the April 1, 1980 census count for county i in state j;
Q_{ij10} = the provisional April 1, 1980 postcensal estimate for county i in state j; and
$Q_{ijt0} = P_{ijo}$ = the April 1, 1970 census count for county i in state j, including corrections made subsequent to the release of the official population counts.